Rapid Development with Safari's Integrated Developer Tools

Session 207

These are confidential sessions—please refrain from streaming, blogging, or taking pictures.

Rapid Development with Safari's Integrated Developer Tools

Timothy Hatcher
Safari and WebKit Engineer

Dw

What You'll Learn

- Enable Safari's developer tools
- Prototype and develop websites
- Find and fix errors
- Improve page performance

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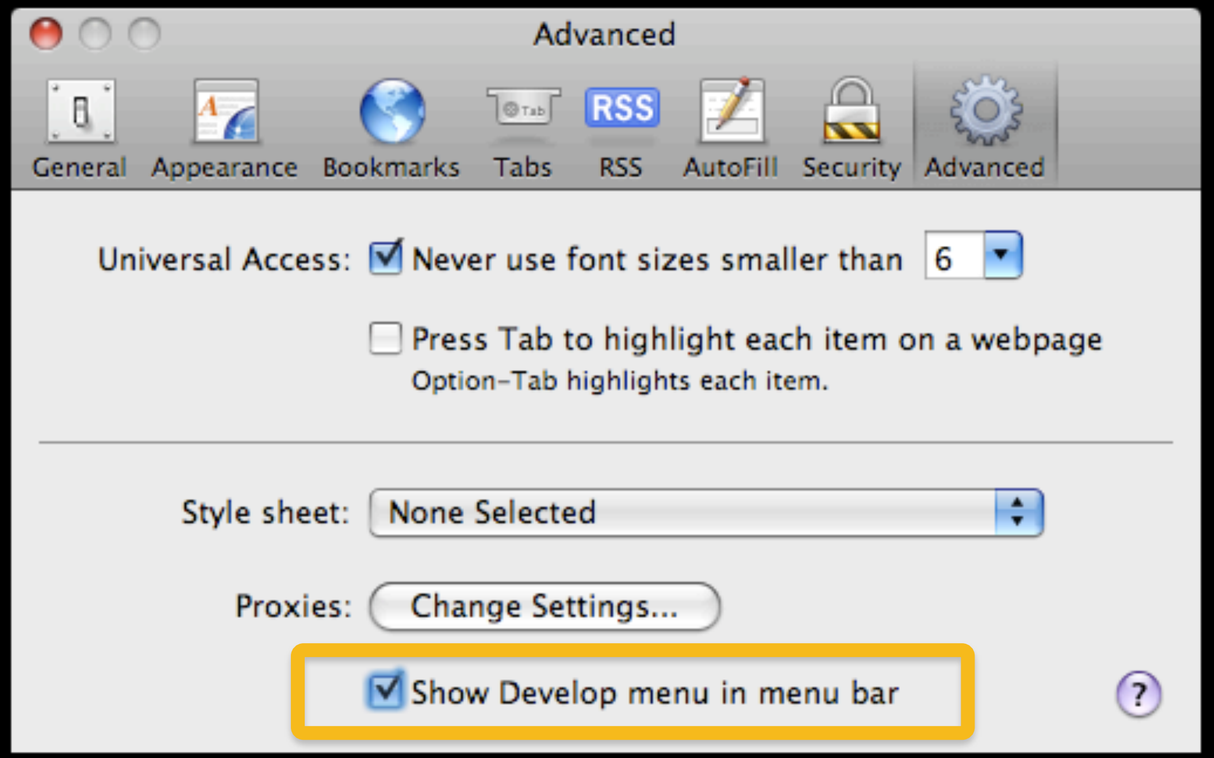
Safari's Develop Menu

Turning on the Develop menu



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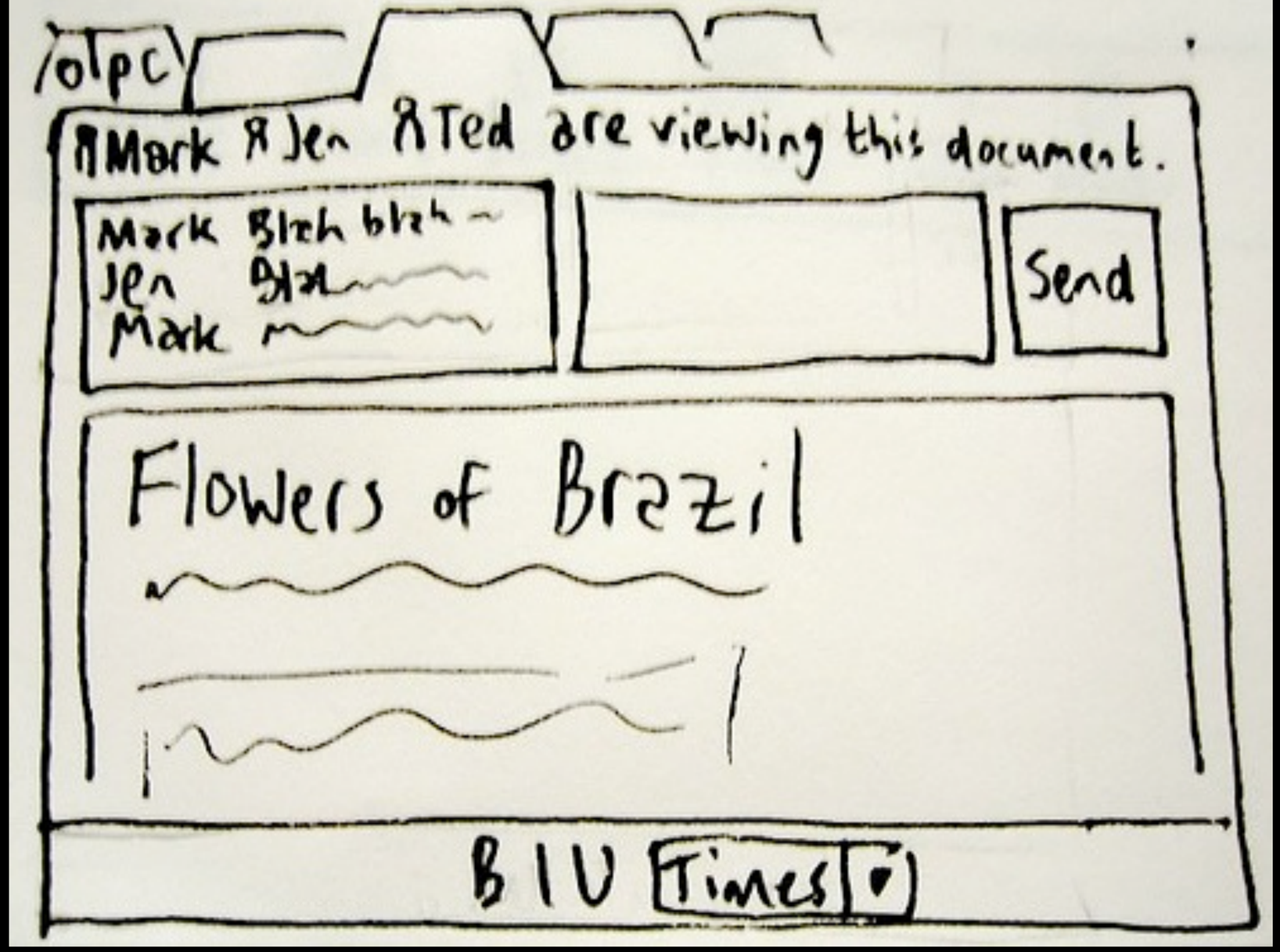
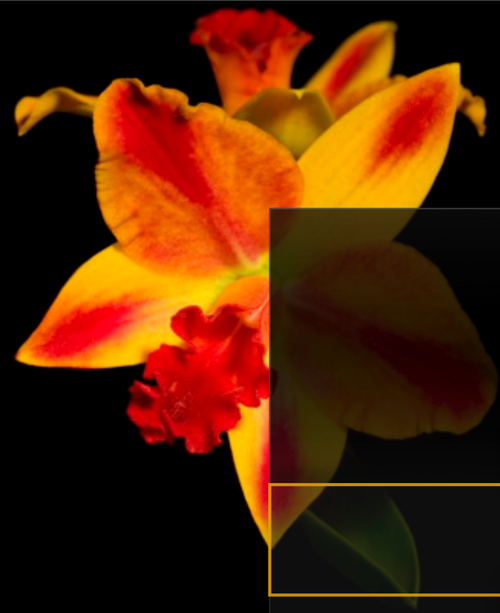
Prototype and Develop Websites


Mark & Jen & Ted are viewing this document.
Mark Blah blah
Jen Blah
Mark
Send
Flowers of Brazil
B I U Times



Home Flowers Climates Documents | Login

Mark Jen Ted are viewing this document.

Mark	Blah blah blah blah
Jen	Blah blah blah blah
Ted	Blah blah blah blah
Susan	Blah blah blah blah

Type message here

Flowers of Brazil

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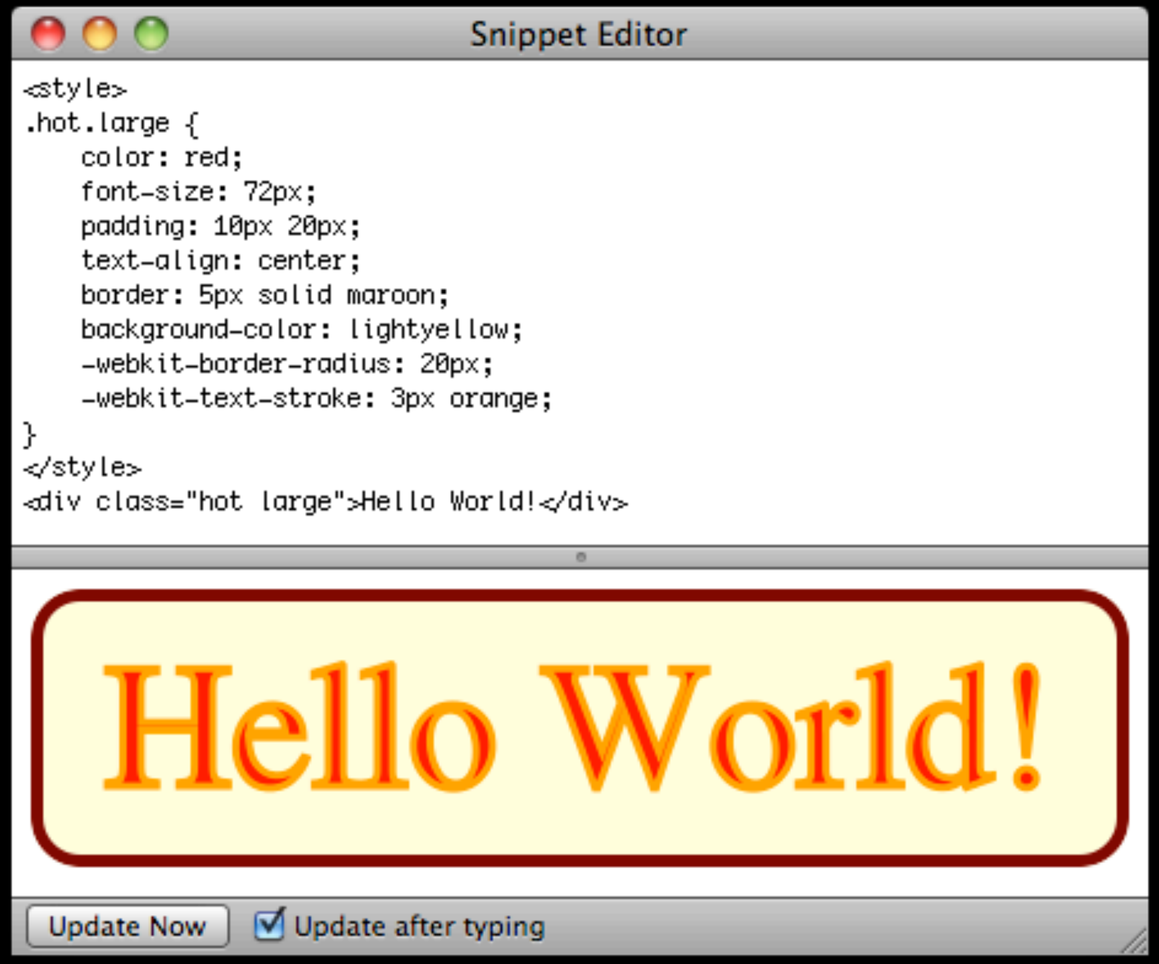
BIU Times

Prototype and Develop Pages

Testing ideas with the Snippet Editor

- Quickly test markup fragments
  - HTML, CSS, JavaScript
- Updates preview as you type
- No need to create a test file



Demo

Finding elements and tweaking CSS live

Prototype and Develop Pages

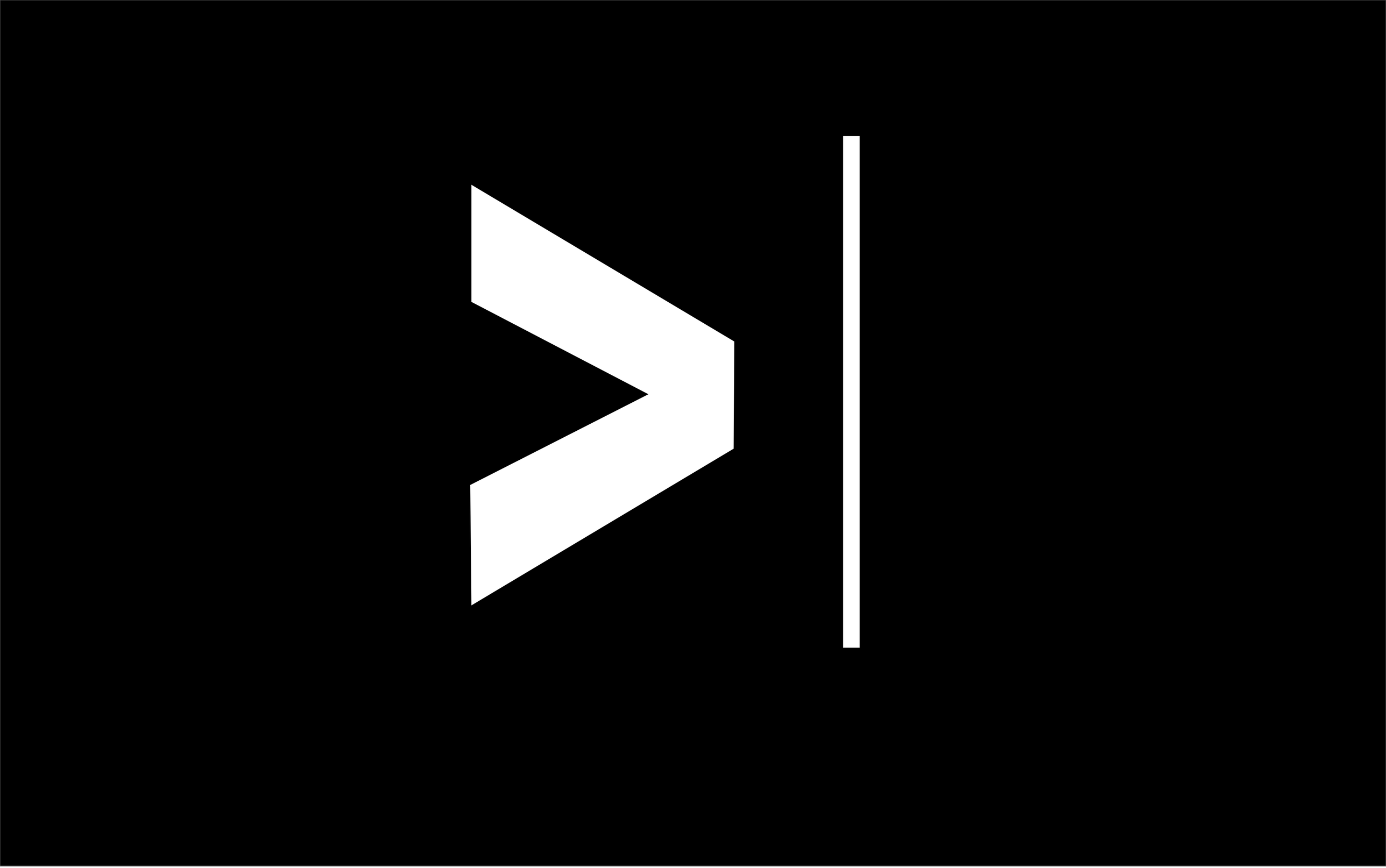
Finding page elements

- Elements panel in Web Inspector
- Inspect button—visually find page elements
- Search field—textually find page elements
  - CSS selectors
  - Tag names
  - Identifiers

Prototype and Develop Pages

Live CSS and DOM tweaking

- Checkboxes to temporarily disable a property
- Double click to edit CSS properties and values
- Arrow keys to increment and decrement numbers



Demo

JavaScript experimentation in the Console

Prototype and Develop Pages

JavaScript experimentation in the Console

- Interactive JavaScript command line
- Autocompletion as you type expressions
- Expandable object results for further introspection
  - DOM tree for elements
  - Property hierarchy for objects

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Finding and Fixing Errors

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Categories of errors

- Markup errors
- JavaScript errors

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Finding and Fixing Errors

Markup errors

- Mis-nested tags

```
<b>Bold <i>and italic</b> text.</i>
```

- Extra closing tags

```
<p>This is a paragraph.</p></p>
```

- Improperly placed tags

```
<table><form></form></table>
```

- Self-closing tags in HTML

```
<a name="giraffe" />
```

Web Inspector — file:///tmp/error.html

Elements | Resources | Scripts | Profiles | Databases | Search

GRAPHS

Time

Size

RESOURCES

error.html /tmp 3

file:///tmp/error.html

▶ Request Headers (3)

```
1  <!DOCTYPE html>
2  <html>
3      <head>
4          <title>Animals With Four Legs</title>
5      </head>
6      <body>
7          <p>There are lots of animals in the world with four legs. This page
8          discusses some of them.</p>
9
10         <h1><a name="giraffe"/>Giraffes</h1>
```

⊗ XML self-closing tag syntax used on <a>. The tag will not be closed.
⊗ <a> misnested or not properly closed. Cloning <a> in order to preserve the styles applied by it.

```
11         <p>The defining characteristics of a giraffe are its long neck and its
12         exceptional height. But they have four legs, so here they are on this
13         page!</p>
14
15         <h1>Dogs</h1>
16         <p>Dogs are not nearly so tall as <a href="#giraffe">giraffes</a>.
```

⊗ <a> misnested or not properly closed. Cloning <a> in order to preserve the styles applied by it.

```
17         Nevertheless, they have four legs.</p>
18     </body>
19 </html>
```

Sort by Response Time

⊗ XML self-closing tag syntax used on <a>. The tag will not be closed. error.html (line 10)
⊗ <a> misnested or not properly closed. Cloning <a> in order to preserve the styles applied by it. error.html (line 10)
⊗ <a> misnested or not properly closed. Cloning <a> in order to preserve the styles applied by it. error.html (line 16)

>

⊗ 3

Web Inspector — file:///tmp/error.html

Elements Resources Scripts Profiles Databases Search

```
<!DOCTYPE html>
▼ <html>
  ▼ <head>
      <title>Animals With Four Legs</title>
    </head>
  ▼ <body>
    ▼ <p>
        "There are lots of animals in the world with four legs. This page discusses some of them."
      </p>
    ▼ <h1>
        <a name="giraffe">Giraffes</a>
      </h1>
    ▼ <a name="giraffe">
      ▼ <p>
          "The defining characteristics of a giraffe are its long neck and its exceptional height. But they have four legs, so here they are on this page!"
        </p>
        <h1>Dogs</h1>
      </a>
    ▼ <p>
        <a name="giraffe">Dogs are not nearly so tall as </a>
        <a href="#giraffe">giraffes</a>
        ". Nevertheless, they have four legs."
      </p>
    </body>
  </html>
```

Styles

Computed Style — Show inherited

```
display: block;
height: 18px;
margin-bottom: 16px;
margin-left: 0px;
margin-right: 0px;
margin-top: 16px;
width: 1166px;
```

p — user agent stylesheet

```
display: block;
▶ margin: 1em 0px;
```

▶ Metrics

▶ Properties

html body p (text)

```
XML self-closing tag syntax used on <a>. The tag will not be closed. error.html (line 10)
<a> misnested or not properly closed.  Cloning <a> in order to preserve the styles applied by it. error.html (line 10)
<a> misnested or not properly closed.  Cloning <a> in order to preserve the styles applied by it. error.html (line 16)
>
```

3

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Elements | Resources | Scripts | Profiles | Databases | Search

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error.html
/tmp

file:///tmp/error.html

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Sort by Response Time

Web Inspector — file:///tmp/error.html

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    </head>
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      </p>
    ▼ <h1>
        <a name="giraffe">
        "Giraffes"
      </h1>
    ▼ <p>
        "The defining characteristics of a giraffe are its long neck and its exceptional height. But they have four legs, so here they are on this page!"
      </p>
      <h1>Dogs</h1>
    ▼ <p>
        "Dogs are not nearly so tall as "
        <a href="#giraffe">giraffes</a>
        ". Nevertheless, they have four legs."
      </p>
    </body>
  </html>
```

▼ Styles

▼ Computed Style — Show inherited

```
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margin-left: 0px;
margin-right: 0px;
margin-top: 16px;
width: 884px;
```

▼ p — user agent stylesheet

```
display: block;
▶ margin: 1em 0px;
```

▶ Metrics

▶ Properties

html body p (text)

>

Finding and Fixing Errors

Categories of errors

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Finding and Fixing Errors

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Finding and Fixing Errors

JavaScript errors

- Null/Undefined object exceptions

```
document.nonexistent.foo = 2;
```

- Explicit exceptions

```
throw "This a test, only a test.";
```

- Parse error

```
alert("Someone said "Hello, world!" today.");
```

Demo

Finding and fixing JavaScript errors

Finding and Fixing Errors

Finding and fixing JavaScript errors

- Enable debugging in the Scripts panel
- Pause on exceptions
- Breakpoints
- Expandable scope variables

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Improve Page Performance

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Categories of performance problems

- Resource Loading
- JavaScript

Improve Page Performance

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Improve Page Performance

Resource loading problems

- Large resources
- Large number of resources
- Serially loaded resources

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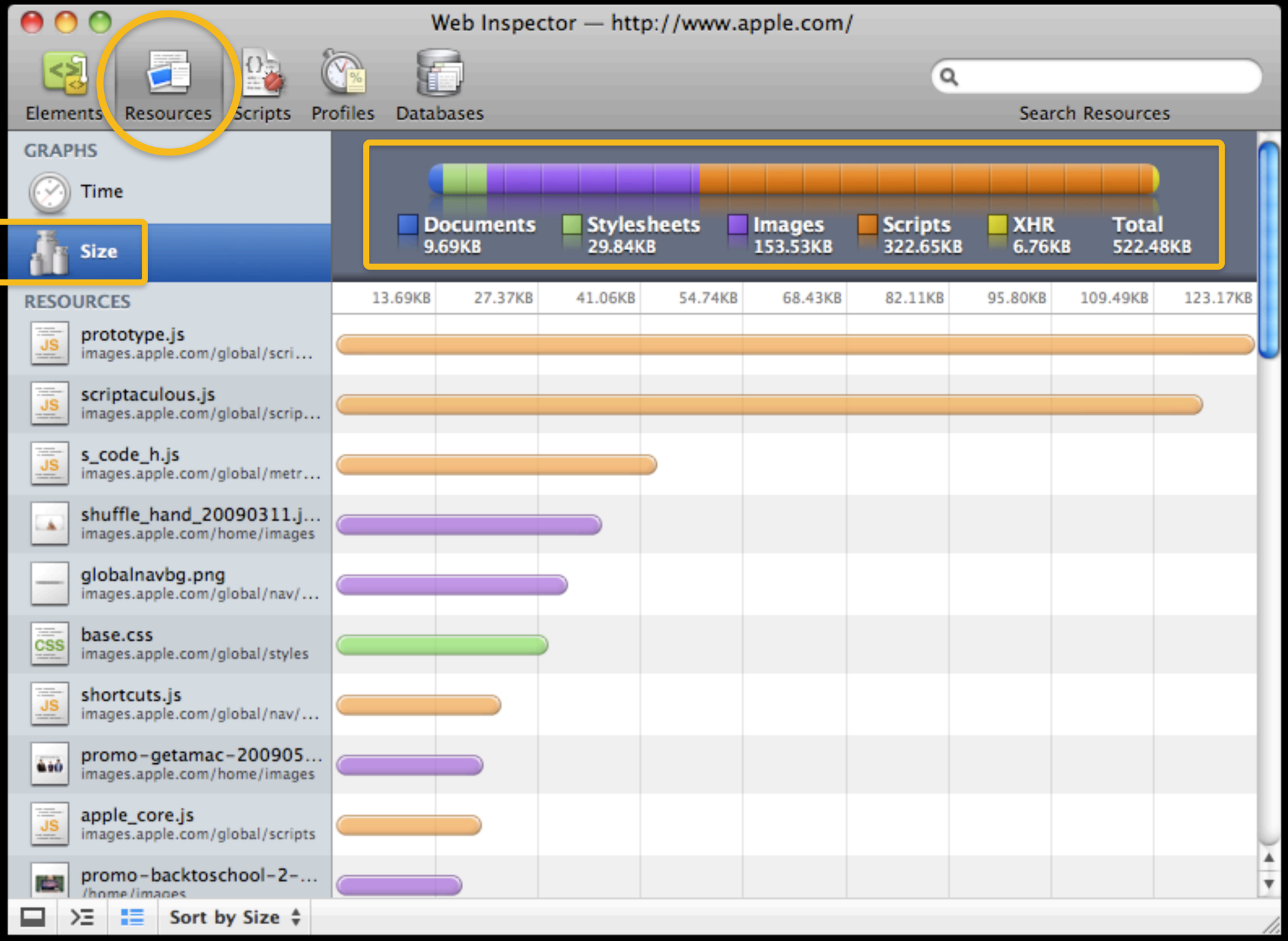
Web Inspector — http://www.apple.com/
Elements
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Scripts
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Time
Size
RESOURCES
Documents 9.69KB
Stylesheets 29.84KB
Images 153.53KB
Scripts 322.65KB
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/home/images
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bts_promorotation.js
images.apple.com/home/scripts

base.css
images.apple.com/global/styles

randinator.js
images.apple.com/global/scripts

ticker.js

Documents 1.75s | Stylesheets 696ms | Images 998ms | Scripts 4.07s | XHR 576ms | Total 12.24s

472ms | 945ms | 1.42s | 1.89s | 2.36s | 2.83s | 3.31s | 3.78s | 4.25s

Sort by Response Time

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activity;src=1566767;typ…
ad.doubleclick.net

http://www.apple.com/

promo-backtoschool-2-…
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metrics.apple.com/b/ss/apple…

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ticker_top_grey.gif
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searchfield_repeat.png
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Sort by Latency

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shuffle_guided_tour_200...
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worldwide_us.png
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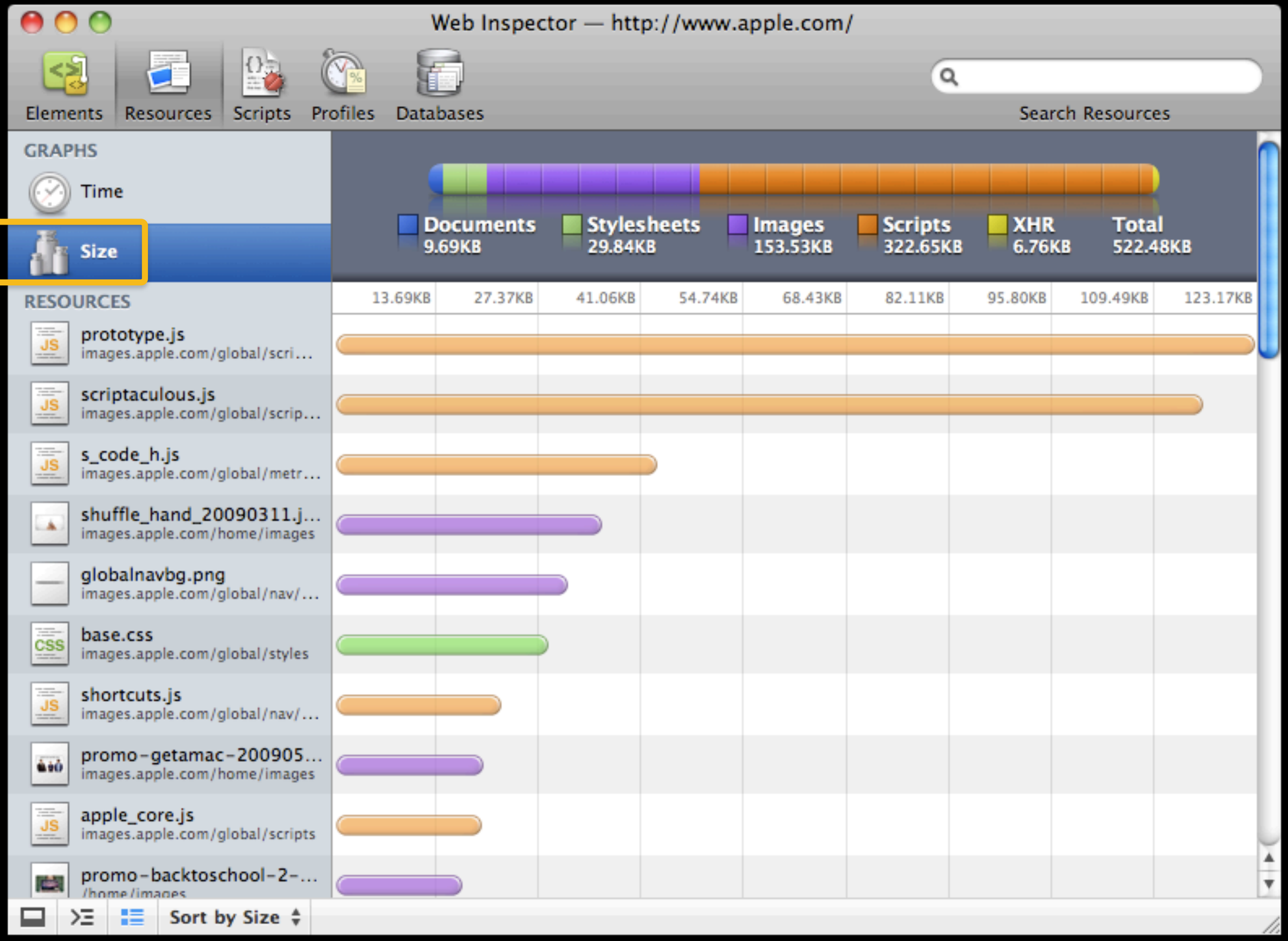
searchfield_repeat.png
images.apple.com/global/nav/...

Documents 544ms | Stylesheets 74ms | Images 670ms | Scripts 442ms | XHR 332ms | Total 1.55s

39ms 79ms 118ms 158ms 197ms 236ms 276ms 315ms 355ms

Sort by Latency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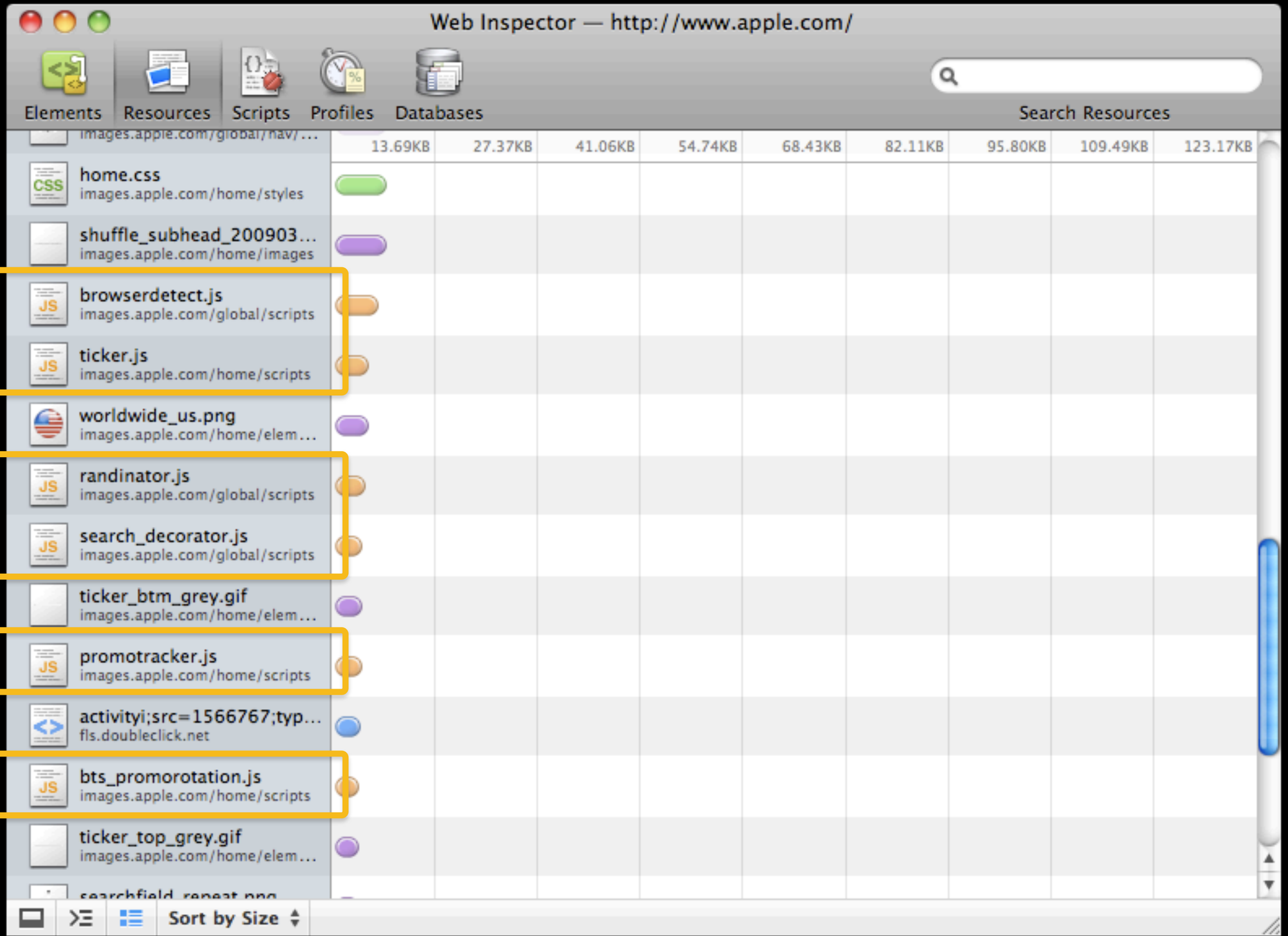
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Improve Page Performance

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172ms 344ms 516ms 688ms 860ms 1.03s 1.20s 1.38s 1.55s

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Search Resources

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home-bg-choosecountry…
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globalnavbg.png
images.apple.com/global/nav/…

morearrow_08c.gif
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Improve Page Performance

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Demo

Improving JavaScript performance

Improve Page Performance

Improving JavaScript performance

- Enable profiling in the Profiles panel
- Use console.profile() and console.profileEnd()
- Grouping of multiple profile runs

Summary

- Enable Safari’s developer tools
- Prototype and develop websites
- Find and fix errors
- Improve page performance

More Information

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Internet and iPhone Evangelist
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Safari Dev Center
http://developer.apple.com/safari

Related Sessions

Sophisticated Media Playback and Animation Through Standards	Mission Wednesday 3:30PM
Leveraging Web Content in Mac OS X Applications with WebKit	Mission Thursday 9:00AM
Local Data Storage and Offline Web Applications for Safari	Russian Hill Thursday 3:30PM
Building Compatible Websites Using Emerging Web Technologies	Russian Hill Thursday 5:00PM
Improving Accessibility in Web Applications	Russian Hill Friday 9:00AM

Labs

iPhone Web Applications Lab	iPhone Lab A Wednesday 5:00PM
Safari Open Lab	OS X Lab A Thursday 9:00AM
Media Playback in Web Applications Lab	OS X Lab C Thursday 10:30AM
Local Data Storage and Offline Web Applications Lab	OS X Lab A Thursday 5:30PM
WebKit Lab	OS X Lab D Friday 12:00PM

Q&A

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